

Cotner Patent No. 5,645,054 has been used as a §102 reference against some of the claims in the application, and it has been used as the primary reference against the others. Cotner in fact bears almost no relationship to what is being claimed and any comparison between the two is totally artificial. The Examiner is correct that there are two error signals in both cases. But in the invention the two error signals are used in a servo loop to control ventilation. In Cotner, on the other hand, there is just one error signal that controls the servo loop; the other "error" signal pointed to by the Examiner appears to simply smooth over what might be called a 'blip' that could otherwise mess up the only error signal that is used in the servo loop.

Claim 112, the only independent claim presently in the application, defines two error signals. Each of them represents the difference (error) between the same desired target value and a measure of ventilation. One of the errors controls a faster response than the other. The rate at which the pressure is changed when the target is not being satisfied is a function of both errors, but one of the two errors exercises more control than the other depending on how far away from the target the instantaneous ventilation is at the moment. The further away the instantaneous ventilation is from the target, the greater the influence on the response by the error that controls a faster response. Parameter values may differ, but both error signals basically control the same kind of operation; it is just that the response times are different so depending on the current situation one of the two error signals exercises more control over the servo loop than the other error signal. But there are two error signals both of which control the servo and thus the pressure.

In Cotner, there is just one error signal that affects the pressure. It is what the Examiner identified as the first error signal -- the absence of inhalation for eight seconds. When there has been no inhalation for eight seconds, the output of timing circuit 27 changes and causes the pressure to be increased. This is the only representation of an error that controls an increase in the pressure.

Referring to Figure 1 of Cotner, it can be seen how timing circuit 27 is triggered in the first place. Inhalation detector 24 functions as a comparator. One input is a variable (said to be pressure in column 6, line 14, but possibly really flow since that is the more usual measure), apparently an instantaneous measure. The other input to detector 24 is the output from dynamic reference tracking circuit 25, which is a filter. It appears from the middle paragraph in column 6 that this circuit derives the average value of the variable over recent breaths. This means that detector 24 (which causes the timing circuit that represents an "error" to be triggered if the output of the detector indicates the absence of a breath for eight seconds) compares the instantaneous value of the variable with the average value. Every time the patient breathes, the output of the detector 24 goes high because there is a large departure from the average value, so the absence of an output pulse for eight seconds indicates the absence of breathing.

There is no second error signal in Cotner that controls a servo loop or any kind of pressure change. The Examiner says that "the critical flow limitations [are the] second error signal ... and [are] eliminated by antifalsing circuit 17" (Office Action, page 2). But the error signal referred to by the Examiner, discussed, for example, at the bottom of column 6 of Cotner, have nothing to do with controlling a servo loop or the pressure. The antifalsing circuit 17 is simply a filter (a resistor and a capacitor, according to the description) connected between the output of detector 24 and the input of timing circuit 27. The timing circuit is supposed to detect pulses from detector 24 and check whether eight seconds have expired between pulses. The antifalsing filter 17 is said to slow down the output of the detector 24 "to prevent short duration pulses, which characterize 'critical flow limitations' (reduced inhalation), from being sensed as normal inhalation." Whatever all of this means, one thing is clear -- antifalsing circuit 17 prevents false outputs of detector 24 from being sensed. So the Examiner's second error circuit is nothing more than a circuit that makes sure that the first error circuit operates properly. It is not an error signal that controls the servo

loop. It is not an error signal that controls the applied pressure. It is not an error circuit that has anything to do with the claims in issue.

The other references cited by the Examiner have been reviewed, but they are not believed to be relevant to the invention defined in claims 112-134. Because the rejection of every claim is based at least in part on the Cotner reference, and Cotner is totally alien to the invention under consideration, it is believed that the claims are clearly patentable over the cited prior art. For these reasons the allowance of the claims and the early passage to issue of the application are respectfully requested.

Respectfully submitted

Gottlieb, Rackman & Reisman, P.C.

Dated: January 11, 2010

By: 

Michael I. Rackman  
Attorney for Applicants  
Registration No. 20,639